

Appl. No. 10/791,446
Amendment and/or Reply
to the Office Action of 1 June 2005

REMARKS / DISCUSSION OF ISSUES

Claims 1-34 are pending in the application. Claims 1, 18 and 22 are the independent claims.

Applicant respectfully request approval of the drawings on file in the present application.

Allowable Subject Matter

Applicant gratefully acknowledges the indication of allowability of the subject matter of claims 9, 10, 12-15, 28 and 31-34.

Rejections under 35 U.S.C. § 102

1. Claims 1, 5, 8, 16 and 17 were rejected under 35 U.S.C. § 102(b) as being unpatentable over *Simopolous* (U.S. Patent 5,777,519). For at least the reasons set forth below, it is respectfully submitted that the rejected claims are patentable over the applied art.
2. Claims 1,5,7,8, 16 and 17 were rejected under 35 U.S.C. § 102(e) as being unpatentable over *Duerbaum, et al.* (U.S. Patent 6,711,034). For at least the reasons set forth below, it is respectfully submitted that the rejected claims are patentable over the applied art.

A proper rejection for anticipation requires, as the first step in the inquiry, that all the elements of the claimed invention be described in a single reference. A necessary corollary to the test of anticipation is that the absence from the reference of any claimed element negates anticipation.

Independent claim 1 is drawn to an isolated DC-to-DC converter and features:

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"...a second low pass filter connected to the primary winding, wherein the second low-pass filter is adapted to remove harmonic components of a switching frequency."

In embodiments described in the filed application, harmonics are reduced or removed in order to avoid deleterious injected currents. In the embodiment described in connection with Fig. 3, the switched DC voltage is filtered by a low-pass filter 316, which is connected to the primary winding of the transformer 330. Thereby, the primary AC voltage is generated and has fewer, if any harmonics. As a result, substantially less current is injected into the isolated portion of the converter 300 due to any inter-winding capacitance in the isolation transformer 330.

By contrast, the references to *Simopolous* and *Duerbaum, et al.* lack at least the disclosure of the low-pass filter as recited in claim 1. Notably, the Office Action recognizes the absence of this feature of the claim in *Simopolous*. (See page 4 of the Office Action.) Applicant concurs that the reference to *Simopolous* lacks, *inter alia*, the disclosure of the second low-pass filter featured in claim 1. The Examiner attempts to cure the deficiency of *Simopolous* by asserting that it is well known in the art that such a filter will enhance the circuit performance by "improving stability (oscillation) of the device."

First, Applicant notes that a function of the second low-pass filter is to reduce the harmonics and thereby the injected current into the isolated portion of the converter. It is unclear how improvement of stability (oscillation) relates to the reduction of harmonics and injected current. Accordingly, the applicability of a filter asserted to be known for improving stability of the circuit as a filter for reducing harmonics as featured in claim 1 is improper.

Second, the Examiner has supplied no citation of the second low-pass filter of claim 1 in the known art. Rather, the Examiner has cobbled together a rejection based on an applied reference and an unsupported statement that such a low-pass filter is well-known. With regard to the latter, Applicant respectfully submits that an unsupported statement does not suffice as evidence of lack of

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patentability. Accordingly, Applicant respectfully requests the citation of applicable prior art. If the assertion of the low-pass filter is based on personal knowledge of the Examiner, an affidavit under 37 C.F.R. § 1.104 (d) (2) is respectfully requested. If the Examiner cannot cite prior art taken alone or in proper combination which would have produced the DC-to-DC converter of claims 1 then Applicants respectfully submit that they are entitled to an allowance of their claims as a matter of law. Accordingly, the Examiner is respectfully requested to cite prior art disclosing the device including all of the features recited in the claim 1, or else allow Applicants' claims.

Because the references to *Simopolous* and *Duerbaum, et al.* lack the disclosure of at least one of the features of claim 1, these references cannot serve to establish a *prima facie* case of anticipation thereof. Therefore, claim 1 and the claims that depend therefrom are patentable over the applied art. Allowance is solicited.

Rejections under 35 U.S.C. § 103

1. Claims 2-4 and 6 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Duerbaum, et al.*

Claim 2, 4 and 6 depend ultimately from claim 1, which for at least the reasons set forth above are patentable over the applied art. Therefore, it is respectfully submitted that claims 2, 4 and 6 are patentable over the applied art at least because of their dependence on claim 1.

The above notwithstanding, the rejections of claims 2-4 and 6 are improper for at least the following reasons. The Examiner asserts that one of ordinary skill in the art would have utilized the inputs claimed, since "applicant has not disclosed that the AC inputs solve any stated problem or is for any particular purpose." (Please refer to page 4 of the Office Action.)

First, it is again emphasized that a proper rejection requires the citation of applicable prior art. The Examiner does not provide any citation of such art in the present rejection. If this knowledge of the art is from the Examiner's personal

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knowledge, an affidavit under Rule 104(d) (2) is respectfully requested. If neither the required art nor the affidavit can be produced and properly applied, withdrawal of the rejection of claims 2-4 and 6 in view of *Duerbaum, et al.* is respectfully requested.

Furthermore, Applicant respectfully notes that the subject matter of claims 2-4 and 6 and the usefulness thereof is described in the filed application. For example, the benefits of the sinusoidal AC input voltage source and the four-stepped approximation of a sinusoidal AC voltage are described in the filed application at page 6, lines 1-11.

For at least the reasons set forth above, it is respectfully submitted that for at least the reasons set forth above, the a proper *prima facie* case of obviousness has not been established with regard to claims 2-4 and 6. Because a proper *prima facie* case of obviousness has not been established, it is respectfully requested that the rejection of claims 2-4 and 6 be withdrawn and that these claims be allowed.

2. Claims 2-4, 6, 11, 18-27, 29 and 30 were rejected under 35 U.S.C. §103(a) as being unpatentable over *Simopolous*. For at least the reasons that follow, it is respectfully submitted that these claims are patentable over the applied art.

With particular regard to claims 2-4, 6 and 23-25, the Examiner relies on reasoning that is nearly identical to the rejection of claims 2-4 and 6 in view of *Simopolous* discussed above. Applicant respectfully reiterates the impropriety of this rejection for the reasons set forth above and requests a proper citation or an affidavit as discussed previously.

Claims 18 and 22 are independent claims and include features similar to claim 1 noted above. In particular, claim 18 features "...means for low-pass-filtering the switched DC voltage to yield a primary AC voltage..."; and claim 22 features "...low-pass-filtering the switched DC voltage to yield a primary AC voltage..."

As noted previously, the Examiner recognizes that *Simopolous* lacks the

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disclosure of the low-pass filter coupled to the primary windings of the transformer and the filtering of the switch DC voltage to yield a primary AC voltage. For reasons set forth in detail above with regard to the rejection of claim 1, it is respectfully submitted that the rejection of claims 18 and 22 are improper. Accordingly, Applicant respectfully requests the citation of applicable prior art. If the assertion of the low-pass filter is based on personal knowledge of the Examiner, an affidavit under 37 C.F.R. § 1.104 (d) (2) is respectfully requested. If the Examiner cannot cite prior art taken alone or in proper combination which would have produced the DC-to-DC converter of claims 1 then Applicants respectfully submit that they are entitled to an allowance of their claims as a matter of law. Accordingly, the Examiner is respectfully requested to cite prior art disclosing the device including all of the features recited in the various claims 18 and 22, or else allow Applicants' claims.

For at least the reasons set forth above, it is respectfully submitted that the rejection of independent claims 18 and 22 is improper and should be withdrawn. Thus, claims 18 and 22 and the claims that depend therefrom are believed to be patentable over the applied art. Allowance is earnestly solicited.

Conclusion

In view of the foregoing, Applicant respectfully requests that the objections and rejections of record be withdrawn, and all pending claims be allowed. If any remaining issues can be resolved through a personal or telephonic interview, the Examiner is invited to contact the undersigned at the telephone number listed below.

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